

CLAIMS

1. An acoustic apparatus comprising:  
a headphone section to be mounted on the user head,  
having the microphone element for detecting a sound around the  
user and a signal acoustic transducing element with a function  
as a sound source for canceling the sound around the user housed  
in a headphone box, and equipped with a first output terminal  
for outputting the audio signal collected by the microphone  
element and a first input terminal for inputting the audio  
signal supplied to the signal acoustic transducing element, and  
a control circuit section independent from the headphone  
section, equipped with a second input terminal connected to the  
first output terminal and a second output terminal connected to  
the first input terminal, and intended to control at least the  
frequency characteristics and the gain characteristics of the  
audio signal from the microphone element of the headphone  
section inputted through the second input terminal, to generate  
a signal that can serve as a sound source for canceling the  
surrounding sound, and to supply the signal to the signal  
acoustic transducing element of the headphone section through  
the second output terminal.

2. An acoustic apparatus according to claim 1, wherein  
the control circuit section is equipped with a recording means

for recording the audio signal from the microphone element.

3. An acoustic apparatus according to claim 1, wherein the control circuit section is equipped with means for adding different audio signals to the canceling audio signals by using the signal audio converter element as a sound source in order to cancel the surrounding sound.

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4. An acoustic apparatus according to claim 1, wherein the control circuit section comprises a means for adding different audio signals to the canceling audio signals by using the signal audio converter element as a sound source in order to cancel the surrounding sound, and

a remote control equipment is configured so as to supply remote-control signals for remotely controlling the output device of the different audio signals to the output device of the audio signals.

5. An acoustic apparatus comprising:

a headphone section to be mounted to the user head, having the microphone element for detecting sound around the user and a signal acoustic transducing element with a function as a sound source for canceling the sound around the user housed in a headphone box, and equipped with a first output terminal equipped with an adjusting section for adjusting the output of

the audio signal collected by the microphone element and a first input terminal for inputting the audio signal supplied to the signal acoustic transducing element, and

a control circuit section independent from the headphone section, equipped with a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal, and intended to control at least the frequency characteristics and the gain characteristics of the audio signal from the microphone element of the headphone section inputted through the second input terminal, to generate a signal that can serve as a sound source for canceling the surrounding sound, and to supply the signal to the signal acoustic transducing element of the headphone section through the second output terminal.

6. An acoustic apparatus according to claim 5, wherein an amplifier section is equipped in the headphone box behind the adjusting means for generating the output signal from the microphone element serving as a sound source in order to cancel the sound around the user and for adjusting the output signal from the microphone element, and gains are controlled by amplifying the output signals.

7. An acoustic apparatus according to claim 5, wherein an amplifier section for generating signals serving as a sound

source for canceling the sound around the user and an adjusting means for adjusting the output level of the amplifier section are provided in the headphone box, and gains of signals inputted to the signal acoustic transducing element are controlled.

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8. An acoustic apparatus according to claim 5, wherein an adjusting section generates output signals from the microphone element that serves as a sound source for canceling the sound around the user and adjusts the output signal from the microphone element in the headphone box,

said adjusting means having an operating means which the user is able to operate from the outside, and

an amplifier section for amplifying the output signals adjusted at the adjusting section.

9. an acoustic apparatus according to the present invention comprising

a headphone section to be mounted to the user head, having the microphone element for detecting sound around the user and a signal acoustic transducing element with a function as a sound source for canceling the sound around the user housed in a headphone box, and equipped with a first output terminal for outputting the audio signal collected by the microphone element and a first input terminal for inputting the audio signal supplied to the signal acoustic transducing element, and

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a control circuit section independent from the headphone section, equipped with a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal, and intended to control at least the frequency characteristics and the gain characteristics of the audio signal from the microphone element of the headphone section inputted through the second input terminal, the said frequency characteristics and gain characteristics being adjusted to achieve the predetermined ones in the predetermined frequency between 50 Hz and 1.5 kHz, to generate a signal that can serve as a sound source for canceling the surrounding sound, and to supply the signal to the signal acoustic transducing element of the headphone section through the second output terminal.

10. An acoustic apparatus according to the present invention comprises

a headphone section to be mounted to the user head, having the microphone element for detecting sound around the user and a signal acoustic transducing element with a function as a sound source for canceling the sound around the user housed in a headphone box, and equipped with a first output terminal for outputting the audio signal collected by the microphone element and a first input terminal for inputting the audio signal supplied to the signal acoustic transducing element,

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a control circuit section independent from the headphone section, equipped with a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal, and intended to control at least the frequency characteristics and the gain characteristics of the audio signal from the microphone element of the headphone section inputted through the second input terminal, to generate a signal that can serve as a sound source for canceling the surrounding sound, and to supply the signal to the signal acoustic transducing element of the headphone section through the second output terminal, and

a control circuit section in which the circuit configuration for canceling the surrounding sound is of a feed-forward system.

11. An acoustic apparatus according to the present invention comprises

a headphone section to be mounted to the user head, having the microphone element for detecting sound around the user and a signal acoustic transducing element with a function as a sound source for canceling the sound around the user housed in a headphone box, and equipped with a first output terminal for outputting the audio signal collected by the microphone element and a first input terminal for inputting the audio signal supplied to the signal acoustic transducing element,

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a control circuit section independent from the headphone section, equipped with a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal, and intended to control at least the frequency characteristics and the gain characteristics of the audio signal from the microphone element of the headphone section inputted through the second input terminal, to generate a signal that can serve as a sound source for canceling the surrounding sound, and to supply the signal to the signal acoustic transducing element of the headphone section through the second output terminal, and

a control circuit section in which the circuit configuration for canceling the surrounding sound is of a feedback system.

12. A headphone comprising:

a box for housing a microphone element for detecting the sound around the user and a signal acoustic transducing element equipped with a function as a sound source for canceling the sound around the user,

an output terminal of the audio signal whose sound is collected by the microphone element, and an input terminal for audio signals supplied to the signal acoustic transducing element.

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13. A headphone comprising:

a box for housing a microphone element for detecting the sound around the user, a signal acoustic transducing element equipped with a function as a sound source for canceling the sound around the user, and an adjusting section for adjusting the cancel amount of the surrounding sound,

an output terminal of the audio signal whose sound is collected by the microphone element, and an input terminal for audio signals supplied to the signal acoustic transducing element.

14. A headphone according to claim 13, wherein the adjusting section comprises a means for adjusting gains to output signals from the microphone element.

15. A headphone according to claim 13, wherein the adjusting section comprises a means for adjusting gains to the signal inputted to the signal acoustic transducing element.